four pair of four-inch plates of copper and zinc to blood, and extracted acid and alkali at the opposite wires.

A second experiment was made, with similar results, on blood still fluid, in the vein of an animal just killed.

A third experiment was made upon serum, with 120 plates highly charged, with the same result.

A fourth experiment was conducted in a similar manner, with 12 pair of plates, with similar results.

In a fifth experiment, 30 pair of plates, very weakly charged, also extracted alkali and acid from serum exposed to them.

Since powers so weak are capable of separating the constituent parts of blood, it is suggested that the weaker powers existing in animals may produce the same effect, and thus occasion all the different secretions, and modify albumen into the states of the different animal solids.

On the comparative Influence of Male and Female Parents on their Offspring. By Thomas Andrew Knight, *Esq. F.R.S. In a Letter to the Right Hon. Sir* Joseph Banks, *Bart. K.B. P.R.S.* Read June 22, 1809. [*Phil. Trans.* 1809, *p.* 392.]

During the very extensive series of Mr. Knight's endeavours to improve the varieties of fruit-trees, he has also been occupied in making correspondent experiments on the breeding of animals, and has always paid attention to the strong analogy which universally subsists between plants and animals in most points relating to generation.

Although the author's experiments have extended to many different species of fruit-trees, yet the greatest number, and those under the most favourable circumstances, were upon apple-trees. But as the results were all in unison, the instances here adduced are from the apple alone.

Linnæus conceived the character of the *male* to predominate in the exterior both of plants and animals: but Mr. Knight's observations have led him to form a different conclusion; for he remarks, that seedling plants and the young of animals inherit much more of the character of the *female*.

Seeds from cultivated apple-trees, impregnated by the Siberian crab, produced larger fruit than those from the crab impregnated by stamina from the cultivated fruit; but the quality and flavour of the fruit appeared to inherit, in a greater degree, the qualities of the male.

In consequence of the frequent intermixtures that have taken place in the breeding of domesticated animals, there is often little resemblance to either parent; but it is observed, that the dimensions of the offspring are regulated principally by those of the female, and that a corresponding length of legs appears especially necessary for accompanying the parent in flight. But unless the male parent be proportionally strong, the legs of the offspring may be too long in

proportion to the strength which it will ultimately attain, and it may be ill adapted to the purposes of labour.

Mr. Knight remarks, that with respect to sex also, the influence of the female entirely predominates, as particular females will produce all their offspring of one sex, either male or female; but by attending to the numerous offspring of a single bull, ram, or horse, he has never witnessed any considerable difference in the numbers of the two sexes.

The size and form of the eggs of oviparous animals being dependent wholly on the female, regulate of course the size of the offspring, and in this respect resemble the seeds of plants; but their formation, nevertheless, appears to depend on different laws; for the eggs of birds, fishes, and insects, attain their full size in total independence of the male; but in seeds, on the contrary, the whole internal organization depends on the influence of the male. For though a gourd may produce fruit, apparently perfect, without impregnation, and although even the seed-coats acquire their natural size and form, these coats are perfectly empty, without the slightest vestige of cotyledons or plumula, or anything that appears to correspond with the internal organization of a complete seed.

On the Effect of westerly Winds in raising the Level of the British Channel. In a Letter to the Right Hon. Sir Joseph Banks, *Bart. K.B. P.R.S. By* James Rennell, *Esq. F.R.S.* Read June 22, 1809. [*Phil. Trans.* 1809, *p.* 400.]

The recent loss of the Britannia East Indiaman having appeared to the author intimately connected with those observations which he formerly communicated to the Society concerning a current that occasionally prevails to the westward of Scilly, he has thought the circumstances deserving of particular inquiry, as it may be of use to record them as a warning against dangers which may probably be avoided.

During the prevalence of westerly winds, it is well known that they occasion the height of the tides to be greater in the southern parts of Great Britain, even as much as ten feet, in violent storms from that quarter; and it has also been remarked, that the flood-tide runs an hour or more longer than at common times; or, in other words, that a current overcomes the ebb-tide. And since the direction of this current must be influenced by the form of the adjacent shores, it is evident that the shore in the neighbourhood of Boulogne, which tends very directly northward, will cause a northerly current through the Straits of Dover.

It appears to have been under these circumstances, that the Britannia was lost. Having been driven up the Straits by a violent gale from the south-west in thick weather, which prevented a view of the lights, the pilot was left entirely to the reckoning and the lead: but as he was not aware of the unusual current that prevailed, he was driven unexpectedly on the back, or eastern side of the Goodwin Sands.